IMPLEMENTING SUSTAINABLE DEVELOPMENT

REPORT OF THE INTERDEPARTMENTAL WORKSHOP ON SUSTAINABLE DEVELOPMENT IN FEDERAL NATURAL RESOURCE DEPARTMENTS

Environment Canada Environnement Canada

Canada

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Report of the Interdepartmental Workshop on
Sustainable Development in
Federal Natural Resource Departments

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TABLE OF CONTENTS

Introduction 1

1. Definition and principles 2
1.1 Definition of sustainable development 2
1.2 Principles for sustainable resource management 3

2. Constraints and opportunities 5
2.1 Constraints 5
2.2 Opportunities 8

3. Implementing sustainable development 9

4. Recommendations 10
4.1 Reinforcing accountability 10
4.2 Supporting environment/economy integration 11
4.3 Building partnerships 12
4.4 Harnessing market forces 12
4.5 Research 13
4.6 More focused analysis of constraints and opportunities 13
4.7 Ongoing coordination mechanism 14
4.8 Communications 14

5. Conclusion 15

6. Appendices 16
6.1 Workshop program 17
6.2 List of speakers and papers 24
6.3 List of participants 25

PREFACE

For some years, opinion polls have shovn rising public concern over environmental issues. In the 1989 Angus Reid poll ("Canadians and the Environment"), for example, 40 per cent of Canadians identified the protection of the environment as the top issue facing the country. The depth of this public concern is a major reason behind recent government and business initiatives on the environment.

Following the report of the National Task Force on Environment and Economy, a number of Canadian jurisdictions have taken steps to promote more sustainable forms of development. These steps have included the creation of senior-level multistakeholder round tables on environment and economy, the preparation of sustainable development or conservation strategies at the provincial and territorial level and various institutional reforms in the machinery of government.

Through its many policies and programs the federal government is both part of the problem and a significant part of the solution in moving along the path to sustainable development. At the federal level, several initiatives related to sustainable development are under way, most notably the drafting of a Green Plan for Canada, which is now the subject of public consultations and the introduction of federal environmental assessment and review legislation. In addition, other initiatives such as the Environmental Industries Programme of Industry, Science and Technology Canada, the Action Strategy for Sustainable Tourism Development, the policy review which Agriculture Canada is conducting and the Policy for the Management of Fish Habitat by Fisheries and Oceans Canada deserve mention.

Based on all of these factors, it was timely to examine how the policies, programmes, and activities of federal natural resource departments could better implement the principles and goals of sustainable development, particularly the incorporation of environmental considerations into decision-making. The workshop discussed how to make sustainable development a reality through the development of and changes to strategies, models, methods and practices in departments and agencies.

Dr. E.W. Manning
Workshop Co-Chairperson

E. Wiken
Workshop Co-Chairperson

Introduction

Environment Canada, in collaboration with a Steering Committee from eight federal natural resource departments and agencies, hosted a technical workshop at Mont Ste. Marie from May 6 to 8 on "implementing sustainable development in federal natural resource departments". The purpose of the workshop was to develop and recommend useable guidelines to implement sustainable development in natural resource departments. Fifty-three invited participants from 10 federal departments and agencies, the Manitoba government and the private sector attended the workshop. The workshop's agenda and the list of participants appear in the Appendix.

The workshop was organized under three themes which provide the framework for this report:

1. Principles of sustainable development
2. Constraints and opportunities for implementing sustainable development in federal natural resource departments
3. Actions to better implement sustainable development within federal natural resource departments

The first two themes were explored in four simultaneous discussion groups addressing the following case studies: Riding Mountain National Park and surrounding region; the social, environmental and economic aspects of sustainable resource management in single-industry towns; agriculture and prairie ecosystems; and a hardwood forest development project in Honduras. The third theme examined the implementation of sustainable development strategies through (i) changes to the planning process, (ii) policy and economic instruments, (iii) the integration of bio-physical and socio-economic factors and (iv) screening criteria, programme guidelines and codes of practice.

This report synthesizes the workshop's main conclusions and recommendations and is not intended as a comprehensive summary of the discussion. The report is divided into three main sections, reflecting the workshop's themes listed above, followed by recommendations.

1. Definition and principles

1.1 Definition of sustainable development

Several definitions of the concept "sustainable development" exist. The workshop accepted the World Commission on Environment and Development's (Brundtland Commission) definition of sustainable development stated as development which "meets the needs of the present without compromising the ability of future generations to meet their own needs." For its part, the National Task Force on Environment and Economy defined sustainable development in its 1987 report as "development which ensures that the utilization of resources and the environment today does not damage prospects for their use by future generations".

In his presentation to the workshop, Barry Sadler suggested that, to be sustainable, development must meet three fundamental and equal objectives (see Figures 1 and 2):

- an economic objective: the production of goods and services. The overriding criterion in fulfilling this objective is efficiency;

- an environmental objective: the conservation and prudent management of natural resources. The overriding criterion here is the preservation of biodiversity and maintenance of ecological integrity;

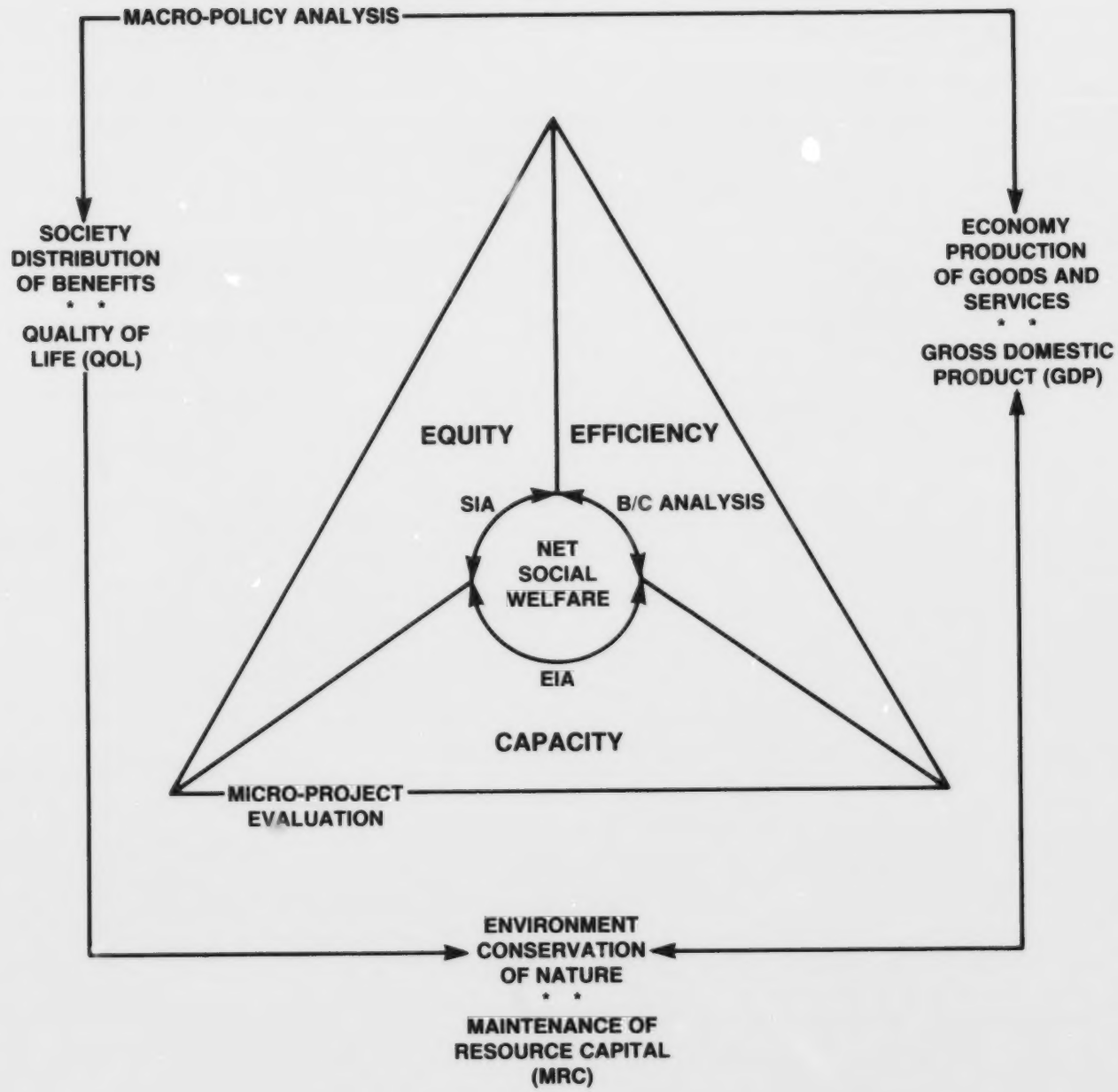
- a social objective: the maintenance and enhancement of the quality of life. Equity is the main consideration in meeting this objective.

While these objectives are helpful in clarifying the various dimensions of the term sustainable development, they do not provide any guidance as to the relative balance to be struck among these objectives. This balance will have major financial implications. Using the Great Lakes as an example, the Institute for Research on Public Policy and the U.S. Conservation Foundation have calculated that the difference in cost between defining sustainable development as the provision of safe drinking water (an anthropocentric approach) and recreating a natural ecosystem (a biocentric approach) to be in the order of $100 billion. It is essential, therefore, that the definition of sustainable development be translated into operational terms for the purpose of policy and program development and implementation in each federal department for at least two reasons:

- First, unless managers and policy analysts know what sustainable development means in precise operational terms for the programs for which they are responsible and why they should apply the concept, they rightly will be reluctant to change the legislation, regulations and policies that they administer or modify their management and decision-making processes.

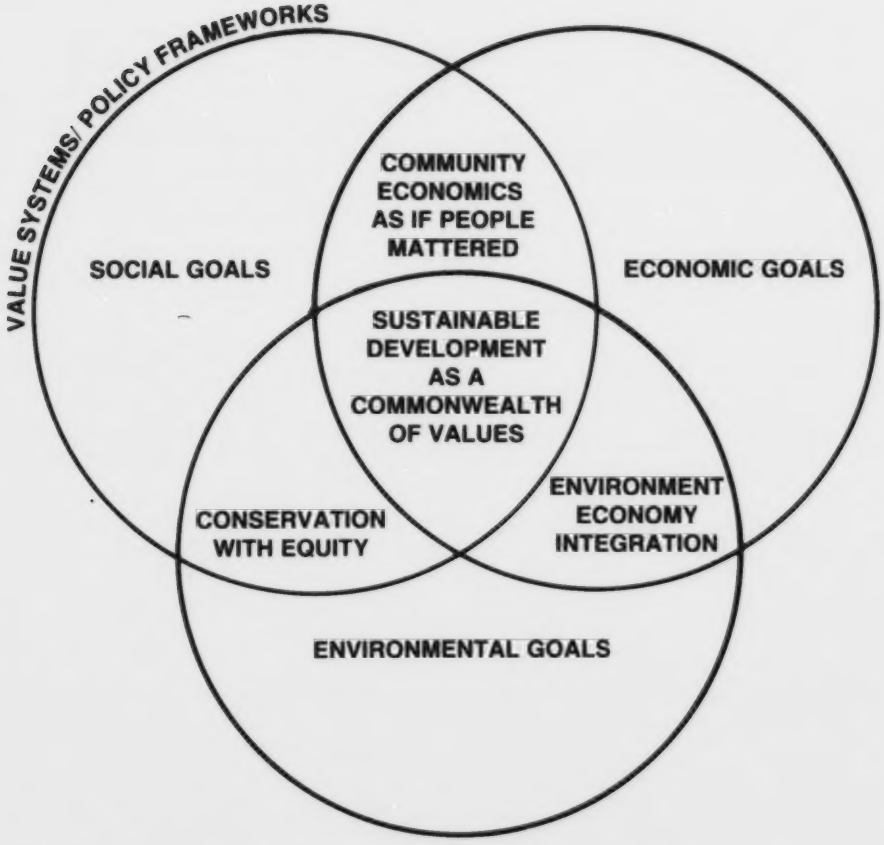
- Second, the policy-maker also needs practical guidance concerning how to integrate environmental considerations into economic decision-making. In other words: what environmental factors are relevant? what weight should they be given? when should they be considered? what policy instruments should be applied? what evaluation criteria exist to gauge success? etc.

FIG. 1 DECISION-MAKING FOR SUSTAINABLE DEVELOPMENT: CRITERIA AND COMPONENTS



SOURCE: SADLER, 1988.

FIG. 2 A SYSTEMS PERSPECTIVE ON SUSTAINABLE DEVELOPMENT



SOURCE: SADLER, 1988.

The federal government will have an important role to play in clarifying and explaining to the Canadian public what the environmental and economic trade-offs among different definitions of sustainability are (i.e., what level of environmental quality for what cost). In every case, the key three questions will be: (1) what is to be sustained? (in the case of Prairie agriculture, for example, is it the family farm? the income generating potential of the land? the level of soil nutrients? the biological diversity of the ecosystem?) (2) over how long is the activity to be sustainable? (a few years? several decades? in perpetuity?) and (3) over what area is sustainability to be sought? (a community? a region? the country? globally?)

1.2 Principles for Sustainable Resource Management

Twelve principles to guide Federal program managers in implementing sustainable development strategies in natural resource departments were proposed during the course of the workshop. These are listed below with short commentaries.

1) **informed decision-making that routinely integrates environmental considerations into economic policies and strategies as early as possible in the decision process:** one of the greatest barriers to sustainable development is that our economic and ecological systems are totally interlocked in the real world but remain almost totally divorced in public and private institutions.

2) **the anticipation and prevention of environmental problems:** environmental degradation often imposes economic costs and can sometimes be irreversible. Experience has shown that it is cheaper to prevent an environmental problem than to have to correct it after the fact. The goal of planning in sustainable development is to reduce the economic, social and environmental risks of decisions.

3) **holistic planning and management of the environment in terms of all the functions derived from the environment** (i.e.; productive, carrier, buffering and information). This principle stands in counterpoint to planning only in terms of a single sectoral or departmental objective.

4) **full-cost accounting that incorporates environmental costs into prices:** the low or zero price of environmental resources (such as air, water and wildlife habitat) or environmental functions (biological diversity, toxic buffering) leads to their abuse and distorts the efficient allocation of resources in both the short and long term.

5) **living off the interest of natural assets:** the degradation of renewable resources is foreclosing economic development options. Over time, humankind has to live within the income stream generated by renewable resources without depreciating them. Living off the interest of natural assets will require that society develop an ethic of stewardship in resource management: the current generation has a responsibility to those yet unborn to provide them with at least as much clean air, water, fertile soils and biological diversity as we presently enjoy.

6) **prudent management of non-renevable resources:** non renevables should be used more effectively through re-use, recovery, recycling and substitution so as to provide the functions and benefits to society in an environmentally sensitive way.

7) **emphasis on the quality of economic "development" over the quantity or rate of "growth":** economic "development" implies an improvement in social and economic conditions. Equity, sustainability and environmental quality are important goals of economic development. Economic "growth", on the other hand, is measured by the increase in production and consumption of goods and services. Increasing efficiency is the main goal of an economic growth policy. Efficiency is a necessary but insufficient condition to the achievement of sustainable development.

8) **the building of partnerships among stakeholders:** because the definition of what is sustainable is based in part on values, governments cannot impose sustainable development. As users and consumers of resources, all stakeholders have to be involved in defining and implementing sustainable development strategies.

9) **the meeting of basic human needs and aspirations:** poverty is a major cause of environmental degradation world-wide and an obstacle to environmentally-sound economic development. The Canadian International Development Agency has made this principle a priority of Canadian foreign aid policy.

10) **planning and analysis should be conducted on an ecosystem basis:** the results, however, must be translated to administrative boundaries for the purpose of program design and accountability.

11) **the promotion of ecological, social and economic diversity:** diversified ecosystems and economies are more resilient than simple ones.

12) **the fair sharing of costs and benefits:** equity is as important as efficiency in ensuring sustainability.

The application of these principles to federal natural resource development departments would have far-reaching implications for policy formulation and program development. It should be noted that the government has already committed itself to several of these principles in various policy statements (e.g., anticipation and prevention strategy, informed decision-making, full-cost accounting, the meeting of human needs and the fair sharing of costs and benefits) although the extent of their application varies. Other principles on this list, however, (e.g., living off the interest of natural assets, emphasis on the quality of development, promotion of diversity) clearly go beyond present policy or practice.

The application of some of these principles (informed decision-making and planning on an ecosystem basis) is also likely to require new mechanisms to integrate and coordinate policy-making for sustainable development among departments.

2. Constraints and opportunities

2.1 Constraints

The scientific understanding of the nature and consequences of environmental impacts has evolved considerably over the last two decades. This evolution has occurred fast enough that many of the values, structures and processes of government decision-making have not kept up with the requirement to integrate environmental factors into economic decision-making and now represent barriers to the promotion of sustainable development.

The list presented below enumerates the most important barriers identified during the course of the workshop discussions under four categories: (1) knowledge, research and methods, (2) organizational structure, (3) bureaucratic processes and (4) attitudes and values:

(1) Knowledge, Research and Methodological Constraints

- insufficient guidelines and knowledge: The policy criteria which line departments use to screen projects for environmental impacts are not always translated into operational guidelines for line managers. The latter must therefore rely on their intuitive assessment of a policy's impacts. More fundamentally, in many cases, environmental knowledge on which to assess a policy's impacts does not exist or is imprecise. Very few federal policies, programmes and practices have been assessed for their environmental impact.

- methodological constraints: The lack of a clearly-established methodology to integrate environmental and economic data sets, the absence of sustainable development indicators, the limited empirical data about the applicability and efficiency of economic instruments (e.g., tradable pollution rights) and the inadequacy of staff training constitute additional barriers which inhibit managers from incorporating sustainable development principles and criteria into federal policies and programmes.

- bias in economic analysis: Discount rates, a standard tool in economic analysis, favour projects with short term benefits. Long-term costs, even if they entail irreversible environmental degradation, are often discounted to such an extent that they do not influence the choice of decisions to be made. Similarly, the benefits of sound resource management (e.g., reforestation) may accrue too far into the future to be considered in decision-making.

(2) Constraints from Institutional Structures

- organisational structure: The Canadian government, like most other governments, has inhibited the integrated formulation of policy by segregating environmental considerations in a separate department. Environment Canada's mandate focuses on the downstream of the development cycle and the ways and means of ameliorating negative environmental effects. The Department has limited policy levers.

Economic development departments deal with the upstream end of development. These agencies determine the form and content of growth and whether development is sustainable but generally have not been held fully accountable for the environmental implications of their policies, programmes, subsidies and other actions. Interdepartmental coordinating and consultative mechanisms will be needed to review the environmental implications of initiatives by line departments. The reform of the federal environmental assessment process and the Green Plan are both designed to integrate environmental considerations into policy formulation.

- jurisdictional split: Few issues are handled by one agency alone. Most often, coordination is required not only within an agency but among agencies and sometimes also between levels of government. The checks and balances implicit in divided jurisdiction make it more difficult to initiate policies which depart sharply from past practice.

(3) Constraints from Bureaucratic Processes and Procedures

- lack of clear objectives: this barrier has already been described above. It should be noted that Canada's system of "brokerage politics" among powerful vested interests offers no rewards to politicians and government officials who define precise objectives. On the contrary, the definition of such objectives risks offending those who disagree and also provides an onerous measure of accountability where the decision-maker often does not fully control the formulation and implementation of a policy.

- budgetary restraint: the effective integration of environmental factors in government policy will require the application of new skills and, perhaps therefore, the hiring of new staff in line departments. The Federal Environmental Assessment and Review Office, for example has estimated that a 50% increase over current expenditures would be needed to implement the environmental assessment and review process fully under the existing order-in-council and a further doubling of resources would have to be allocated to implement a legislated process. Budgetary restraint and the government's limit on the size of the public service could loom as important constraints to the effective consideration of environmental matters in policy-making and the funding of the necessary scientific research and support for policy-making and implementation.

- information access: policy-making frequently engenders conflict, particularly when the future of a programme is at stake. In such circumstances, policy-makers are often reluctant to provide potential critics with the information needed to make a real choice, particularly when this information could be used to mobilize support against their preferred course of action. internal competition and the hoarding of information already constitute barriers to efficient environmental policy-making.

- crisis management: much policy is developed in reaction to an external demand, under tight deadlines and in an atmosphere of "crisis". in such a charged atmosphere, there is little opportunity to consider the environmental implications of the policy options under review.

- inadequate enforcement: the tools which presently exist to achieve more sustainable forms of development are not always used because of political considerations or inadequate resourcing (e.g., insufficient enforcement officers).

- lack of accountability and absence of incentives: few managers are accountable for the environmental implications of their programmes, in part because environmental factors are not routinely incorporated into programme design, performance appraisals, programme evaluations, memoranda to cabinet, etc. it should also be noted that there are seldom any rewards to the policy-maker for addressing environmental problems. On the contrary, the addition of environmental factors to the policy process is seen with considerable justification as being complex, time-consuming, subjective and a potential generator of conflicts.

(4) Constraints from attitudes and values

- societal will: Policy is about making choices. Where these choices involve a trade-off between short-term economic growth and long-term environmental protection, the fact that society has tended to value the present more than the future has biased decisions in favour of growth. Nevertheless, strengthening public concern over the environment implies that Canadians are less willing to discount the future than they used to be.

- fear of change: The implementation of sustainable development policies will require in some cases new skills, different methods of analysis, new attitudes and values and consultation with new stakeholders. The perceived all-embracing nature of the changes to be made understandably intimidates many decision-makers.

The constraints above are both substantive (stemming from inadequate knowledge or methodology) and procedural (related to institutional processes). Scientific research, technology development and the application of new analytical methods will clearly play a key role in the promotion of sustainable development, but social and institutional changes will be equally, if not more, important.

Technical fixes are not at the core of a sustainable development strategy. This was a conclusion from at least two of the discussion groups who emphasized the importance of enhancing human dignity and self-respect, fostering a sense of pride or community and the empowerment of local citizens as key ingredients in sustainable development strategies. The importance of these factors carries several implications for the way in which government develops policy and administers programmes with respect to the environment and natural resources. They imply:

- earlier consultation with stakeholders
- the building of partnerships inside and outside government
- greater emphasis on developing and sharing information, knowledge and methods
- the creation of mechanisms to reinforce accountability for environmental impacts
- the collaborative definition of policy options
- the early consideration of environmental factors in decision-making

2.2 Opportunities

The promotion of sustainable development strategies in federal natural resource agencies will not occur in a vacuum. Several initiatives have already been taken or are under way at the federal level which directly support sustainable development. Among these:

- The 1986 Policy for the Management of Fish Habitat by Fisheries and Oceans Canada is implicitly a sustainable development policy through its reliance on the principle of "no net loss" of productive fish habitat.

- Forestry Canada has adopted the promotion of "sustainable development... for the well-being of present and future generations..." as its mission statement.

- The Canadian International Development Agency's 1988 strategy "Sharing our Future" builds upon several of the recommendations of the Brundtland report.

- Agriculture Canada's current policy review includes an examination of both the merits and implications of "sustainable agriculture" and the environmental effects of the department's policies and programmes.

- The environmental industries initiative of Industry, Science and Technology is designed to promote the development and application of Canadian environmental technology.

- An Action Strategy for Sustainable Tourism Development was drafted at the Globe 90 Conference, with Tourism Canada playing a lead role, and is currently under review.

- The Atlantic Canada Opportunities Agency and the Province of Nova Scotia have negotiated a sustainable development sub-agreement which includes, inter alia, funding for the establishment of a centre of excellence in sustainable development, assistance in the preparation of a provincial sustainable development strategy and assistance to business in seeking solutions to environmental problems.

- The North American Waterfowl Management Plan will channel $1.5 billion over 15 years to maintain and restore waterfowl habitat, primarily in the Prairie provinces. It is an excellent example of a programme under which resource users (in this case, mostly American hunters) fund initiatives to protect and enhance the resource (waterfowl habitat) on which they rely.

- The implementation of the "Green Plan" and a legislated federal Environmental Assessment and Review Process will have major implications for programming, environmental research, decision-making processes and the level of resources available for environmental matters throughout the government.

In addition, the preparation of conservation or sustainable development strategies by a significant number of the provincial Round Tables on Environment and Economy is likely to affect the policies of federal natural resource departments to the extent that they lead to changes in provincial programmes and policies.

3. Implementing sustainable development

The federal government influences the use and management of land, water and other natural resources through several hundred existing programmes, policies, activities and incentives. All of these have environmental implications, positive or negative. In many cases, these environment effects are inadvertent and stem from an incomplete understanding of environmental and economic factors.

These instruments can be seen to range along a continuum from coercive to educational as follows: laws, regulations, policies, pricing, incentives, screening criteria, guidelines, demonstration, research education, information. Each of these categories of instruments has different advantages and disadvantages associated with it: regulation is most effective when meant to address absolutes (e.g, danger to health) but can be expensive to administer. Regulation can also be very effective in driving technological innovation, for example, by setting minimum efficiency or emission standards. Where regulation is applied to an industry whose members face very different compliance costs because they use different processes or because their plants are of different ages, however, uniform standards are not economically efficient and impose unnecessary societal costs. Research and demonstration projects, including public-private collaborative efforts, can lead to the development of more environmentally sensitive technologies.

The efficiency advantages of economic instruments, such as pricing, user fees or tradable pollution rights, are increasingly being recognized. Such instruments are generally more flexible than regulation, can raise money ("green taxes") and should be applied where there is no consensus about technological solutions. These instruments, can also be utilized to favour the adoption of environmentally sensitive technologies. Economic instruments, however, can also have adverse distributional effects and could harm Canada's international competitiveness if our trading partners did not use them.

Another policy instrument designed to change behaviour is to increase the information available to the public through demonstration projects (e.g., the R2000 home) or on-pack labelling (e.g., Environmental Choice Programme). Such an approach is usually cheap but may take longer than regulation or economic instruments to have an effect.

The implementation of sustainable development strategies in federal natural resource departments will require a long term approach. It is unrealistic to expect that policies, laws, regulations and decision-making criteria, processes and approaches, many of which have existed for several decades, can be modified in just a few years. This implementation will require a systematic approach building on inter-related and mutually reinforcing initiatives, including a comprehensive review of the specific environmental effects of existing programmes. A conceptual model of the building blocks of a sustainable development strategy, prepared by Ted Manning, is attached as a point of reference for the range of required actions (Figure 3).

Workshop participants agreed that the effective integration of environmental and economic considerations into policy-making and programming had to start at the top. Central agencies will have an important role to play in setting the overall framework for integration, including the setting of clear and measurable objectives for line departments. Over time, the relative importance of government departments can be expected to change with the environmental management components of various departments and agencies acquiring greater influence. Some skepticism, however, was expressed about creating new institutions to coordinate this effort as it was argued that it might defeat the very objective of making each agency and manager accountable for the environmental implications of their actions.

4. Recommendations

The initiatives proposed during the course of the discussion to implement sustainable development are organized below under five headings:

1) reinforcing accountability,
2) supporting environment-economy integration,
3) building partnerships,
4) harnessing market forces,
5) specific research requirements.

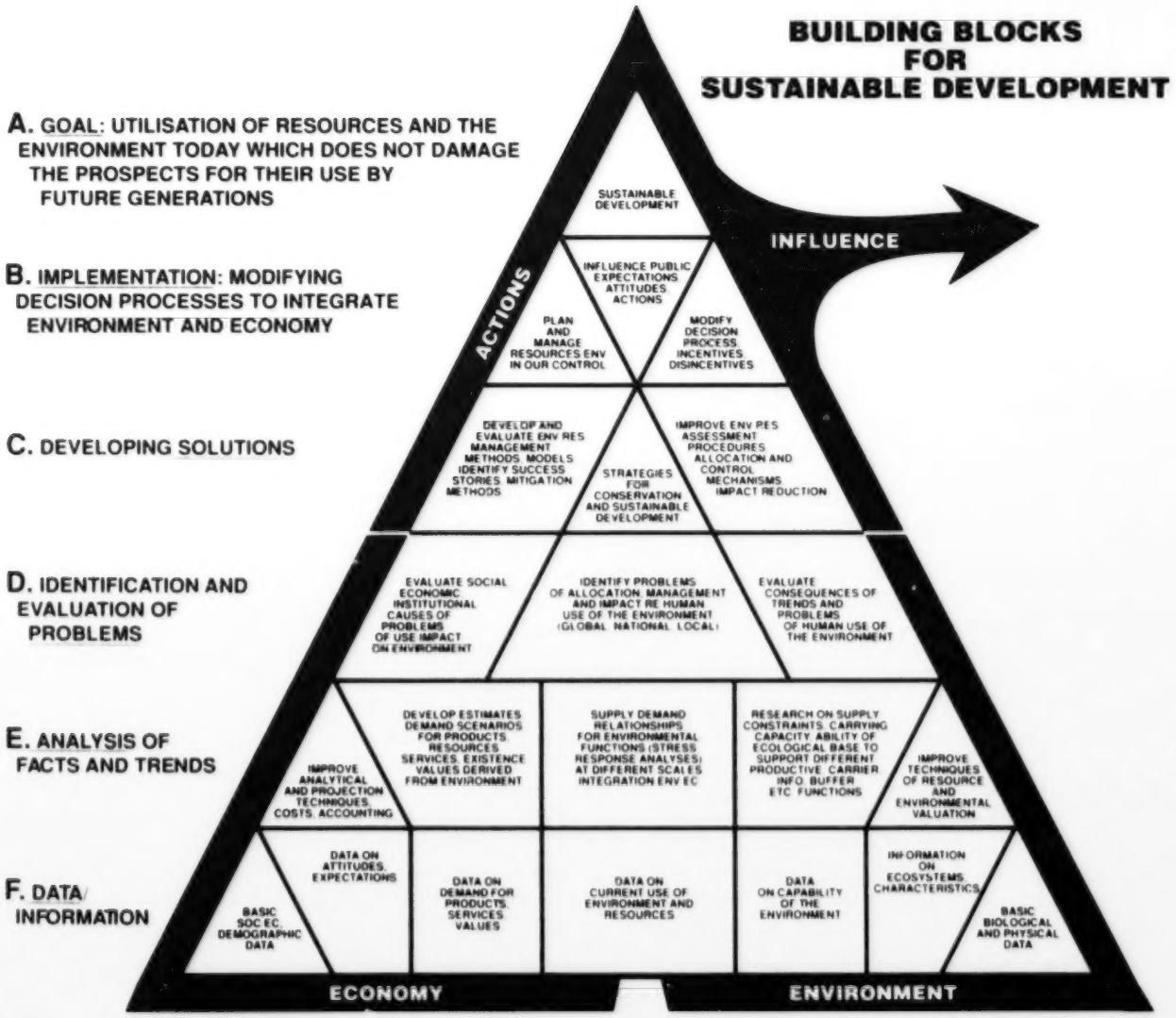
These initiatives are phrased as recommendations arising out of the discussion during the course of the simultaneous workshop sessions. In addition, three recommendations were made concerning follow up action to the workshop:

6) more focused analysis of constraints and opportunities,
7) the creation of an ongoing coordination mechanism,
8) communications.

4.1 Reinforcing accountability

4.1.1 All decision-makers must be made accountable for the environmental implications of their actions. Mechanisms to reinforce accountability include annual reports, departmental audits, job descriptions, individual performance appraisals and work plans. In addition, the inclusion of environmental considerations in Memoranda to Cabinet, where warranted, and the consideration of environmental factors in policy reviews, evaluations of new and existing programmes and federal-provincial agreements, are other tools to instill greater accountability.

FIG. 3


BUILDING BLOCKS
FOR
SUSTAINABLE DEVELOPMENT
A. GOAL: UTILISATION OF RESOURCES AND THE ENVIRONMENT TODAY WHICH DOES NOT DAMAGE THE PROSPECTS FOR THEIR USE BY FUTURE GENERATIONS
B. IMPLEMENTATION: MODIFYING DECISION PROCESSES TO INTEGRATE ENVIRONMENT AND ECONOMY
C. DEVELOPING SOLUTIONS
D. IDENTIFICATION AND EVALUATION OF PROBLEMS
E. ANALYSIS OF FACTS AND TRENDS
F. DATA/ INFORMATION
SUSTAINABLE DEVELOPMENT
INFLUENCE
ACTIONS
INFLUENCE PUBLIC EXPECTATIONS ATTITUDES ACTIONS
PLAN AND MANAGE RESOURCES ENV IN OUR CONTROL
MODIFY DECISION PROCESS INCENTIVES DISINCENTIVES
DEVELOP AND EVALUATE ENV RES MANAGEMENT METHODS MODELS IDENTIFY SUCCESS STORIES MITIGATION METHODS
STRATEGIES FOR CONSERVATION AND SUSTAINABLE DEVELOPMENT
IMPROVE ENV PES ASSESSMENT PROCEDURES ALLOCATION AND CONTROL MECHANISMS IMPACT REDUCTION
EVALUATE SOCIAL ECONOMIC INSTITUTIONAL CAUSES OF PROBLEMS OF USE IMPACT ON ENVIRONMENT
IDENTIFY PROBLEMS OF ALLOCATION MANAGEMENT AND IMPACT RE HUMAN USE OF THE ENVIRONMENT (GLOBAL NATIONAL LOCAL)
EVALUATE CONSEQUENCES OF TRENDS AND PROBLEMS OF HUMAN USE OF THE ENVIRONMENT
IMPROVE ANALYTICAL AND PROJECTION TECHNIQUES COSTS ACCOUNTING
DEVELOP ESTIMATES DEMAND SCENARIOS FOR PRODUCTS RESOURCES SERVICES EXISTENCE VALUES DERIVED FROM ENVIRONMENT
SUPPLY DEMAND RELATIONSHIPS FOR ENVIRONMENTAL FUNCTIONS (STRESS RESPONSE ANALYSES) AT DIFFERENT SCALES INTEGRATION ENV EC
RESEARCH ON SUPPLY CONSTRAINTS CARRYING CAPACITY ABILITY OF ECOLOGICAL BASE TO SUPPORT DIFFERENT PRODUCTIVE CARRIER INFO BUFFER ETC FUNCTIONS
IMPROVE TECHNIQUES OF RESOURCE AND ENVIRONMENTAL VALUATION
BASIC SOC EC DEMOGRAPHIC DATA
DATA ON ATTITUDES EXPECTATIONS
DATA ON DEMAND FOR PRODUCTS SERVICES VALUES
DATA ON CURRENT USE OF ENVIRONMENT AND RESOURCES
DATA ON CAPABILITY OF THE ENVIRONMENT
INFORMATION ON ECOSYSTEMS CHARACTERISTICS
BASIC BIOLOGICAL AND PHYSICAL DATA
ECONOMY
ENVIRONMENT

SOURCE: E.W. MANNING
ENVIRONMENT CANADA
1990

4.1.2 **The government should "get its house in order" and demonstrate environmental leadership through exemplary practices.** These include the drafting of terms of reference to consultants specifying conformity with sustainable development principles, procurement practices, maximum recycling and re-use, "green" offices, etc.

4.1.3 **Parliament should establish an "Environmental Auditor General" (as in New Zealand).** Such an auditor would report on departmental adherence to environmental procedures in decision-making and progress towards implementing sustainable development action plans. Independent audits to reinforce accountability are needed because departments will be reluctant to criticize their own performance.

4.1.4 **The government should put in place the means to measure progress in implementing sustainable development.** Such tools could include the application of sustainable development indicators and natural resource accounting.

4.2 Supporting environment/economy integration:

Several measures need to be introduced in order to facilitate the promotion of sustainable development strategies by federal departments and agencies:

4.2.1 **A system of incentives and rewards, such as awards, certificates of merit and renumeration tied to environmental achievement, should be instituted for federal managers and employees.**

4.2.2 **Courses on sustainable development should be added to the curriculum of the Public Service Commission.** Particular emphasis should be given to ensuring that the Centre for Management Development makes sustainable development courses mandatory for all senior managers and integrates sustainable development principles and practices into existing courses for senior managers. Additional training needs addressing specific departmental requirements will have to be met.

4.2.3 **Knowledge and assessment methodologies for sustainable development must be developed.** Research is required on environmental processes and applied systems analysis to develop the methodologies necessary to integrate environmental and socio-economic data for the purpose of policy formulation and assessment. Particular emphasis should be placed on developing methods to value the benefits that society derives from environmental services (e.g., the contribution of wetlands to flood control) and in identifying cumulative effects and environmental thresholds.

4.2.4 **Available expertise in environmental sciences should be supported and be broadly shared.** Departments with large research establishments have an important role to play in providing technical advice to economic development agencies. In addition, they can help formulate guidelines for the consideration of environmental factors. Steps could include (1) an inventory of federal environmental science expertise, (2) designated centres of federal environmental science expertise for the

conduct of environmental reviews, (3) the holding of issue oriented workshops for the environmental sciences at the federal level, and (4) the development of information sharing mechanisms.

4.2.5 **The government should make greater use of existing environmentally-related guidelines and screening criteria (e.g., Federal Policy on Land Use, Treasury Board land management guidelines, Fisheries and Oceans Canada's Small Craft Harbour guidelines) and seek to systematically integrate them into the federal environmental assessment and review process. In addition the government should strive to harmonize them with provincial ones.** Such guidelines should be developed through consultations with stakeholders and be clearly communicated to practitioners. Their formulation and implementation should provide impetus for changing strategies and practices, and undertaking research. The application of the guidelines should be monitored and evaluated.

4.3 Building partnerships

The Green Plan recognizes the importance of strengthening and expanding partnerships to improve decision-making. The Canadian Council of Ministers of the Environment is the most visible but only one of the mechanisms for federal-provincial collaboration in the environmental field. In addition:

4.3.1 **The government should establish multistakeholder advisory committees to explore areas of consensus in selected policy fields.** The Niagara process, Energy Options, the National Task Force on Environment and Economy all provide models which could be emulated.

4.3.2 **The federal government should promote sustainable development through federal-provincial agreements (e.g., Economic and Regional Development Agreements).** In this way, it can promote sustainable forms of development in areas where it does not have full jurisdiction.

4.3.3 **The government should encourage greater personnel exchanges with non-governmental institutions.**

4.4 Harnessing market forces

4.4.1 **The government should analyze closely the potential social, environmental and economic implications of using economic instruments to achieve environmental objectives.** A variety of economic instruments, including pollution charges, tradable pollution rights, "green" taxes, deposits and user charges, investment incentives and subsidies, resource pricing which reflects the costs of reneval, making information available to the consumer, exist to build environmental considerations into economic decision-making. Economic incentives have historically played an important role in encouraging technological change and encouraging regional and resource development.

4.5 Research

The following areas reflect gaps in knowledge which will be critical to the federal government's ability to promote sustainable development.

4.5.1 **The government should conduct research on new environmental policy instruments.** As the limitations of traditional "command and control" policy instruments become increasingly recognized and a new generation of regional and international environmental problems emerges, new environmental policy instruments need to be analyzed, particularly those which cross the traditional lines between regulatory and economic tools, and private and public tools.

4.5.2 **The government should undertake research focussed on sustainable development indicators.** The European Economic Commission's Environment, Economy and Society Programme was mentioned as an example of how to mobilize resources to ascertain the sustainability of key practices in a region. Environment Canada, the Canadian Environmental Advisory Council and the National Round Table on Environment and Economy are already all working in this area.

4.5.3 **The federal government should undertake applied research on methods to integrate sustainable development principles into programming.** There is a need to apply some of the concepts which have been proposed to integrate environmental and economic decision-making to test their merits. As part of this work, programs which successfully promote sustainable development and screening criteria which effectively integrate environmental and economic considerations should be analyzed.

4.5.4 **The government should pursue basic ecological research.** The nature of ecosystem health is poorly known as are resiliency to stress and the course and endpoint of recovery from stress by ecosystems. Policy targets (e.g., for emissions of pollutants) cannot be set soundly without better information on ecosystemic responses to stress.

4.5.5 **The government should facilitate research and development actions for the development, adoption and implementation of environmentally sensitive technologies in the various resource and processing sectors.** This would include applied research, technology transfer, support to environmental industries and support by various means for industry and universities to undertake fundamental and applied research for environmentally sensitive technologies.

4.6 More focused analysis of constraints and opportunities.

The workshop examined many of the constraints and opportunities associated with the promotion of sustainable development in natural resource departments but only in a preliminary way.

It is recommended that this workshop be followed by additional workshops with a more specific focus to examine the following issues:

4.6.1 **Organizational models:** What lessons are there to be learned from organizational innovations in federal departments or provincial governments? Could some of the mechanisms developed by the Manitoba government (e.g., Sustainable Development Committee of Cabinet, Sustainable Development Co-ordination Unit) to coordinate environmental and economic policy-making operate at the federal level?

4.6.2 **Incentives for federal program managers:** How can the promotion of sustainable development be turned into a positive exercise as opposed to one which is complex, time-consuming and a possible creator of conflicts? How can program managers be rewarded for promoting sustainability? Does Public Service 2000 provide an avenue for considering some of these issues?

4.6.3 **Integrated resource management:** How can the development and implementation of sectoral policies and programmes be integrated to encourage the sustainable use of renewable resources and the prudent management of non-renewable resources? At what level should integration take place? What mechanisms will be necessary to manage renewable and non-renewable resources within a sustainable development framework? How will departmental mandates be affected? What are the organizational implications?

4.6.4 **Analysis of instruments:** The federal government has a very broad array of policy instruments at its disposal: laws, regulations, programmes, incentives, research, demonstration projects, dedicated funds, etc. Which have proved effective in promoting sustainable development? Which yield the most leverage?

4.6.5 **Management of demand:** In what ways and by what means can the behaviour of the institutional sector, public utilities, and the 'service' sectors be changed towards the adoption of practices (re-design, re-use, re-cycle) that conserve resources?

4.7 Ongoing coordination mechanism

4.7.1 **The merits of establishing a working-level network on sustainable development among federal agencies to share experiences and inform each other about their policy initiatives should be studied.** Such a network might operate under the direction of a senior-level steering committee. It may build on existing committees such as the Interdepartmental Committee on Land or the Interdepartmental Committee on Water. Possible terms of reference for such a network will be examined in greater detail in a separate document to be prepared by FEARO and Environment Canada (Corporate Policy Group).

4.8 Communications

4.8.1 **The federal government should communicate the message clearly to its own departments, industry and the public that a sustainable approach requires new ways of thinking, new approaches to decision-making, new procedures and ways of doing things.** It is not "business as usual".

4.8.2 **The government should devote greater effort to communicating sustainable development success stories both inside and outside government.** The purpose of such a communications effort would be to show to individuals and agencies practical examples of how sustainable development strategies can be implemented in different natural resource sectors.

4.8.3 **The government should provide information on specific actions that public agencies, businesses, offices and individuals can undertake to contribute to an environmentally sound approaches.** The booklet, "What We Can Do For Our Environment" and others like it, both from government and the private sector, are a small step towards advising on individual behaviour that is environmentally sensitive.

4.8.4 **The government should provide information on processes, guidelines development, methods of analysis, environmental audits, working examples, etc. of how to build environmental considerations into the economic decision-making process in public and private agencies.**

5. Conclusion

The need to promote environmentally sustainable and equitable forms of economic development has become increasingly recognized in recent years. The federal government has officially endorsed the concept of sustainable development and has launched several initiatives to promote it, most notably, the Green Plan and the reform of the federal environmental assessment and review process.

The successful promotion of sustainable development will require a comprehensive effort. Examples of the measures which will be needed are a greater commitment to environmental science and research, analysis and implementation of the use of policy and economic instruments to achieve environmental objectives, environmental review of government policies and programmes, government staff training and support, a system of incentives and rewards for programme managers, clear lines of accountability, the communication of sustainable development success stories and the building of partnerships with stakeholders. Only by adopting a broad diversity of both knowledge-based and process-based actions can the government move ahead with implementing a sustainable development approach in federal natural resource departments.

6. APPENDICES

6.1 Workshop Program

6.2 List of Speakers and Papers

6.3 List of Participants

APPENDIX 6.1 - WORKSHOP PROGRAM

IMPLEMENTING SUSTAINABLE DEVELOPMENT IN FEDERAL NATURAL RESOURCE DEPARTMENTS:

A TECHNICAL WORKSHOP

Mont Ste. Marie, Quebec, May 6-8, 1990

Purpose

To develop and recommend useable guidelines to implement sustainable development in federal natural resource departments.

Subject Areas

Sustainable Development:

- What it is, characteristics, principles.
- Issues, constraints and need, opportunity for SD implementation in federal natural resource departments.
- How to implement SD through modifying or developing appropriate planning processes, program changes, ecological/economic instruments and models, program guidelines, criteria and practices.
- Next steps for implementing SD.

Workshop Program

Sunday, May 6th

4:00 p.m. to 6:00 p.m. Registration - Lobby

5:00 p.m. Meeting for workshop chairpersons and rapporteurs - Plenary room

6:00 p.m. Dinner and welcome - reserved section of restaurant

8:00 p.m. **Opening Plenary Session**

- Chairperson: E.W. Manning, Corporate Policy Group, Environment Canada
- Opening remarks: purpose of workshop (10 minutes) E.W. Manning

° Keynote address (45 minutes)
David Runnalls, Institute for Research on Public Policy

- Sustainable Development Principles and their Application at Global, National and Regional scales.
- Particular Challenges for the Federal Government in Applying Sustainable Development Principles.

° Follow-up questions, informal session and social gathering.

Monday, May 7th - 8:30 a.m. - 12:00 p.m.:

° **Theme One**: Sustainable Development Principles

Plenary
8:30 a.m.

° Chairperson: Ed Wiken, Corporate Policy Group, Environment Canada

° Presentation on the sustainable development concept and a listing of sustainable development principles based on a review of the literature(15 minutes), by Barry Sadler.

° Questions and comments (15 minutes)

Workshops
(four)
9:00 a.m.

° The workshop will apply and analyse the sustainable development principles with respect to a particular case study of a set of resource issues.

° Each workshop will address a different case study.

° At least one person from the various federal departments/ agencies involved with the multiple resource management issue(s) addressed in the specific case study will be assigned to that particular workshop.

A - Riding Mountain National Park and surrounding region: integrated resource use planning and management with respect to preservation/parks, tourism, agriculture, forest management, water management, hunting and wildlife, relationship to surrounding communities.

B - Social, economic and environmental aspects of sustainable resource management (renevables and non-renevables) with respect to resource towns including those based on mining, forestry, fishing, tourism and parks.

C - Sustainable development of prairie ecosystems for productive farms, soil conservation, wetland/wildlife habitat, adequate supplies of surface water and groundwater.

D - Delivering sustainable development in the Third World: CIDA's Hardwood Forest Development Project in Honduras: Forest management, watershed management, agriculture, soil conservation, land-use planning and land reform (attached).

° Materials re: case studies and some questions to be addressed (2-3 pp.) will be provided to participants at Registration.

10:00 a.m. ° Brief break to get coffee and return to workshop.

Plenary
11:30 a.m. ° Each workshop rapporteur will list the four or five most important sustainable development principles from their workshop and outline their application in the particular case study. (15-20 minutes for all 4 reports).

° The plenary will add any other important sustainable development principles and address how well the sustainable development principles fit across a spectrum of resource issues/case studies. (10-15 minutes).

Lunch - 12:00 noon

Monday, May 7 - 1:30 p.m. - 5:00 p.m.

° **Theme Two:** Sustainable Development Constraints and Opportunities in Federal Resource Departments.

Plenary
1:30 p.m. ° Chairperson: Ed Wiken

Two brief presentations of 15-20 minutes each.

° Building sustainable development into the management of government-constraints and opportunities: the Manitoba Experience. By Bill Barto

° The federal government: constraints to sustainable development implementation: research and knowledge, lack of ecosystems information, techniques, attitudes, process, communication, between scientists and policy-makers, institutional, legislative and program framework, economic incentives - the need for change, challenges and opportunities - by François Bregha.

° Questions and comments (10-15 minutes).

Workshops
(Four)
2:20 p.m. With a view to general or common concerns, but a focus on specific resource issues and case studies, the workshops will address the following topics:

° What are the operational constraints or barriers to implementing sustainable development in these sectors?

Constraints that might be looked at include research and knowledge, ecosystems information, methods of analysis, procedures, incentives/disincentives, legislation, programs, policies, public attitudes and external factors (i.e., international trade, etc.).

° What are the opportunities for implementing sustainable development in these case study situations; how do we overcome these constraints? What instruments might be used?

Each workshop will use the same four case studies used under theme one, which are:

A - Riding Mountain National Park and region: Integrated Resource, Planning and Management
B - Regional Development: Resource Based Towns
C - Prairie Ecosystems: Agriculture, Soils, Wetlands, Wildlife and Water Management
D - Hardwood Forest Development Project: Honduras

Each workshop will have in attendance persons from the respective resource sectors on which they focus.

Coffee
3:15 p.m. Brief break to get coffee and return to workshop.

Plenary
4:30 p.m. Each workshop rapporteur will comment on four or five constraints to sustainable development and possible opportunities or instruments to overcome these constraints, using illustrations from the case study on which they focused. (15-20 minutes).

Plenary discussion of commonalities, synergies possible, the need for integration, cross-sectoral co-operation and compliance, etc. (15-20 minutes).

DINNER - 6:00 p.m.

Monday, May 7th, Evening

8:00 p.m. Sustainable Development - An Ethical Perspective

° Informal session with cash bar to view several videos from different perspectives and have informal discussions.

° "Guideposts For A Sustainable Future" video with a 5-10 minute introduction by Mike Nickerson, Merrickville, Ontario.

° Video on Energy in Canada supplied by EMR.

° Videos on sustainable resource management supplied by DFO.

Tuesday, May 8th - 8:30 a.m. - 12:15 p.m.

° **Theme Three:** What Can We Do Within Federal Natural Resource Departments To Better Implement Sustainable Development.

Plenary
8:30 a.m.

Chairperson: Harry Hirvonen, Corporate Policy Group, Environment Canada

Two brief presentations of 15 minutes each re:

° An eco-regions approach, ecological methods and concerns for implementing sustainable development - by Stan Rove.

° Financial and economic levers, instruments and methods for implementing sustainable development - by Ted Manning.

° Questions or comments (15 minutes).

Workshops
9:15 a.m.

° Four workshops, each addressing one aspect of sustainable development implementation, will be held simultaneously.

° Each workshop will develop a short list of possible instruments or means for implementing sustainable development, some guidelines for their application and conclusions about the general situations or circumstances in which particular instruments will work or not work.

° Each of the four workshops under Theme 3 will develop a set of recommendations for presentation at the morning plenary and also submit them in writing to the conference rapporteur prior to lunch.

° The four topics are:

(A) Implementing Sustainable Development Through Changes to the Planning Process and Through Program Changes.

The workshop could address topics such as:

- Building environmental concerns into economic decisions;
- Incorporating economic factors into environmental initiatives;
- How to implement "anticipatory and preventative" planning;
- Integrated resource planning, sustainable development strategies;
- How to implement the 4 Rs.
- Use of research, extension, demonstration and partnerships to implement Sustainable Development.
- The role of science and knowledge in sustainable development policy-making and planning: how to bring science to bear on economic decisions.

(B) Implementing Sustainable Development Through Policy and Economic Instruments.

The workshop could address topics such as:

- Resource pricing, polluter pays principle;
- No net-loss concept, development rights transfer;
- Incentives, subsidies, disincentives;
- Quotas, setting targets; Emission cap and issuing permits;
- Carbon tax;
- Cross-sector compliance.

(C) Methods, Tools and Information Necessary to Implement Sustainable Development: How to Integrate Bio-physical and Socio-economic Factors.

The workshop could address topics such as:

- What are the models/tools/databases that could best integrate bio-physical and socio-economic information;
- What are the appropriate analytical tools for implementing Sustainable Development;
- What types of data, tools, models are missing?
- What methods/tools require modification (e.g., benefit-cost analysis and use of discount rates).
- How can the analysis and information from these tools and information be used to most effectively influence decisions?

(D) Screening Criteria, Program Guidelines and Codes of Practice for Implementing Sustainable Development.

The workshop could address such topics such as:

- Project and program guidelines;
- Screening criteria for project funding (e.g., ERDAs/EDAs, crop, insurance, FRDAs);
- How to evaluate Sustainable Development success;
- Environmental assessment criteria;

Coffee
10:00 a.m. Brief break to get coffee and return to workshop

Plenary
11:30 a.m. Each rapporteur will summarize their four or five most important findings or recommendations. The plenary will add any additional recommendations re: the implementation of Sustainable Development in federal natural resource departments. (30 minutes for the four reports and discussion).

Lunch - 12:00 p.m.

May 8th - 1:30 p.m. to 4:00 p.m

Closing Plenary Session

Plenary	° Chairperson: Harry Hirvonen
1:30 p.m.	° The conference rapporteur, François Bregha, will briefly summarize findings from the three themes and review the principal recommendations from workshops. (15-20 minutes).
	° Discussion of: (1) Additions and modifications to the recommendations. (2) What are the next steps, based on the workshop recommendations.
Coffee 2:30 p.m.	
Plenary 2:45 p.m.	° Presentation: How Do We Best Communicate Sustainable Development Within Policies, Guidelines, Criteria, etc. Roger Needham? (20-25 minutes)
	° Questions, comments and discussion re: presentation and the question, How do we sell sustainable development within federal natural resource departments and to clients?
4:00 p.m.	Closing Remarks (10-15 minutes) E.W. Manning, Environment Canada.
Departure	4:15 p.m. approximately.

Prepared by:

Wayne Bond
April 26, 1990

Program developed by the Workshop Secretariat: E.W. Manning, E. Wiken, W. Bond, H. Hirvonen and N. Ward with reviews and suggestions from the Workshop Steering Committee.

APPENDIX 6.2

LIST OF SPEAKERS AND PAPERS AT THE PLENARY SESSIONS

David Runnalls	Keynote Address*
Barry Sadler	Principles of Sustainability
W.P. Barto	Building Sustainable Development into the Management of Government - Constraints and Opportunities: The Manitoba Experience*
François Bregha	Implementing Sustainable Development In Federal Natural Resource Departments - Constraints and Opportunities
Stan Rowe	Ecological Methods and Concerns for Implementing Sustainable Development*
Ted Manning	Policy and Economic Levers, Instruments and Methods for Implementing Sustainable Development
Roger Needham	How Do We Best Communicate Sustainable Development

* Available from Sustainable Development/SOE Reporting Branch

APPENDIX 6.3

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